What is claimed is:

1. A phase modulation method comprising:

using a plurality of phase modulators disposed in series to phase modulate light from a source laser,

wherein modulation by a first phase modulator is phase modulation that produces phase shifts of 0 degrees or 2φ degrees, and

modulation by an n-th phase modulator is phase modulation that produces phase shifts of 0 degrees or $2^n \times \varphi$ degrees, φ degrees being a predetermined phase level and n an integer that is not less than two and not more than the number of phase modulators.

2. An optical phase multi-level modulation method comprising:

using first and second phase modulators disposed in series to phase modulate a light from a source laser,

wherein modulation by the first phase modulator is modulation by an in-phase component of quadrature modulation, and

modulation by the second phase modulator is modulation by a quadrature component of quadrature modulation.

3. An optical phase multi-level modulation method comprising:

using first and second phase modulators disposed in series to phase modulate a light from a source laser,

wherein modulation by the first phase modulator is modulation that produces phase shifts of 0 degrees or 180 degrees, and

modulation by the second phase modulator is modulation that produces phase shifts of 0 degrees or 90 degrees.

4. An optical phase multi-level modulation method comprising:

using first and second phase modulators disposed in series to phase modulate a light from a source laser,

wherein modulation by the first phase modulator is modulation by an in-phase component of quadrature modulation that produces phase shifts of 0

degrees or 180 degrees, and

modulation by the second phase modulator is modulation by a quadrature component of quadrature modulation that produces phase shifts of 0 degrees or 90 degrees.

5. An optical phase multi-level modulation method comprising:

using first and second phase modulators disposed in series to phase modulate a light from a source laser,

wherein modulation by the first phase modulator is modulation by an in-phase component of quadrature modulation that produces phase shifts of 0 degrees or 90 degrees, and

modulation by the second phase modulator is modulation by a quadrature component of quadrature modulation that produces phase shifts of 0 degrees or 180 degrees.

6. An optical phase multi-level modulation apparatus comprising: a laser light source and a plurality of phase modulators disposed in a series configuration in which a light from the laser light source is modulated by a first phase modulator that produces phase shifts of 0 degrees or 2φ degrees, and is modulated by an n-th phase modulator that produces phase shifts of 0 degrees or $2^n \times \varphi$ degrees, φ degrees being a predetermined phase level and n an integer that is not less than two and not more than the number of phase modulators.

7. An optical phase multi-level modulation apparatus comprising: a laser light source, first and second phase modulators disposed in series, and means for outputting in-phase and quadrature components of quadrature modulation, in which a light from the laser light source is modulated in the first phase modulator by an in-phase component of quadrature modulation, and is modulated in the second phase modulator by a quadrature component of quadrature modulation.

8. An optical phase multi-level modulation apparatus comprising: a laser light source, first and second phase modulators disposed in series, and means for outputting in-phase and quadrature components of quadrature modulation, in which light from the laser light source modulated in the first phase modulator is phase-shifted 0 degrees or 180 degrees, and light modulated in the second phase modulator is phase-shifted 0 degrees or 90 degrees.

9. An optical phase multi-level modulation apparatus comprising: a laser light source, first and second phase modulators disposed in series, and means for outputting in-phase and quadrature components of quadrature modulation, in which a light from the laser light source is modulated in the first phase modulator by an in-phase component of quadrature modulation that produces phase shifts of 0 degrees or 180 degrees, and is modulated in the second phase modulator by a quadrature component of quadrature modulation that produces phase shifts of 0 degrees or 90 degrees.

10. An optical phase multi-level modulation apparatus comprising: a laser light source, first and second phase modulators disposed in series, and means for outputting in-phase and quadrature components of quadrature modulation, in which a light from the laser light source is modulated in the first phase modulator by an in-phase component of quadrature modulation that produces phase shifts of 0 degrees or 90 degrees, and is modulated in the second phase modulator by a quadrature component of quadrature modulation that produces phase shifts of 0 degree or 180 degrees.

11. An error control method that detects and controls errors on a bit-by-bit basis, comprising using the optical phase multi-level modulation method according to claim 2 on a sending side to transmit the laser light signal modulated by quadrature modulation in-phase and quadrature components containing some of the same symbols as the respective information signals, and on a receiving side confirms wheth r or not the logical lev ls of the

decoded signals are the same.

12. The error control method according to claim 11, in which, in said confirmation, logical levels provided for the quadrature and in-phase components are used to determine whether a state of said components is high (H) or low (L), with a determination only being used if it matches the component determination outcome concerned (H, M or L).

13. The error control method according to claim 12, in which, on a receiving side, symbols included in the in-house and quadrature components that are the same are given different delay times to cancel delay time differences between symbols included in the in-house and quadrature components that are the same.